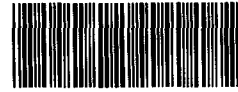




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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

SDMS Doc ID 2003556

01 DEC 1986

MEMORANDUM

SUBJECT: Ordot Sample Plan

FROM: *Patti Connaughton*
Patti Connaughton
Quality Assurance Management Section

TO: Tom Mix,
Superfund Programs Branch

The section of the Ordot sample plan addressing leachate, groundwater and surface waters is considered acceptable for phase I of sampling. The air sampling methods for the Ordot Sample Plan require thoughtful revision. The methods suggested in the plan are a combination of NIOSH and EPA methods involving a variety of sampling and analytical equipment and procedures. The suggested methods, their general equipment, procedures, analytical potential and applicability to the Ordot Plan are detailed below.

NIOSH Methods:

The methods requested include: method 5023 for Coal Tar Pitch Volatiles by gravimetric techniques, method 5503 for PCB's by GC/EC and method 5515 for PAH's including benzene by GC/FID. All methods use solid sorbents to trap compound.

Benzene is the most commonly used desorbing solvent by method 5515. Analysis of benzene is not practical if benzene is used as a desorbing solvent. All other desorbers are inferior and complicated. The labs will require instructions on the use of any other desorbing solvent.

The detection levels for NIOSH method 5023 are in the ppm range. It is not clear in the sample plan if the data users consider such information useful. If data users need lower detection limits, then the method must be modified. Air method detection limits are based on sample size and to change the detection limit requires detailed understanding of the method. The changes of detection level require different procedures in collecting samples, and this will impact not only the laboratory but also the field activities.

EPA Methods

Methods requested include:

- (1) TO-1 for analysis of ten VOA compounds on Tenax for GC/MS analysis. The Phenol analysis requested by method TO-1 is beyond the scope of this technique.
- (2) Method TO-2 for analysis of seven VOA compounds. It involves trapping on carbon molecular sieve (CMS) and GC/MS analysis. The method was extended for analysis of 1,1 and 1,2 Dichloroethylene and Trichloroethylene with no justification of feasibility. Any extension of a method requires both a justification and special instructions to a laboratory.
- (3) Method TO-5 for analysis of ketones/aldehydes by liquid impinger and analysis by MPLC. The plan requests the analysis of 2 ketones (acetone and methylethyl ketone), methanol and methylene chloride. Methylene chloride and methanol analyses are not feasible by this method. Acetone, as described in the method is the one Ketone which interferes with this analysis, therefore, it is not suggested that acetone be analyzed by method TO-5.

The purpose of analyzing all these contaminants appears to be that such compounds are associated with military landfills. There is no indication that these compounds (as gases) will have adverse health effects in their vapor phase or what detection levels are required to provide meaningful data. Without this information, it is not clear how the data will be used.

If this information had been provided, the QAMS reviewer may have been able to determine a better methodology for the analysis of the given compounds. Without this information, the reviewer is compelled to return the plan for revision.

Other complications which are not addressed in this plan are those which are inherent to sampling on a tropical island where humidity is high and transportation routes are unsophisticated. Many sampling devices may be hygroscopic. A telephone call to manufacturers of the equipment which may be used in the field will determine if hygroscopy will be a problem. The stability of compounds, given the three days of transportation, should also be addressed. The feasibility of transporting the equipment to and on the island is not considered in this plan.

The authors should consider the analysis of methane, a carrier gas, which when released in high concentration may carry volatile organics. If methane is sampled, the sample plan writers should consider that the methane concentrations may vary and that more than one day's sampling is advised.

The reviewer recommends that the feasibility of sample collection using cannisters be considered. Whole air samples may be practical because all the toxics can be trapped on one piece of equipment per site and analyzed by GC/MS. However, the hygroscopy and the holding times (in three days of transport will compound react with each other?) have to be considered by sample plan writers.

Finally, it is important to acknowledge that no sampling method is foolproof but some methods are more appropriate than others. The important issues for the sample plan organizer to address are:

- 1) What analytes need to be analyzed and why?
- 2) What detection limits are needed (based on health information)?
- 3) What are the limitations of the site (i.e., humidity, heat, holding times)?
- 4) Is methane significant as a carrier gas?
- 5) Can methods be extended for analysis of additional analytes (contact chemists at EPA, RTP, NIOSH, etc.)?
- 6) Can the numbers of sampling methods be minimized?
- 7) If a sampling method is altered, will this affect laboratory analysis?

Please consider these points when the contracted sample plan authors are revising sampling strategy.

Other minor problems

<u>Section</u>	<u>Page</u>	
4.1	IV-1	Air is SAS, therefore parameters are not HSL. Replace HSL with requested parameters.

In conclusion, the reviewers are prepared to accept the Ordot sample plan for analysis of water and the request for revision applies only to air sampling methodology.

cc: Keith Takata, T-3
Stewart Simpson, P-3-2
Peter Rubenstein, T-3-2
Kevin Kelly, CDM
James Goodrich, CDM